Yasuro KADONO* & Gerhard WIEGLEB**: **Two new *Potamogeton* hybrids from Japan**

角野康郎*・G. ヴィークレブ**: 日本産ヒルムシロ属の2新雑種

The genus *Potamogeton* (Potamogetonaceae) is well known for frequent hybridization and no less than 10 hybrids have been reported from Japan (see Ohwi 1984, Miki 1937). During the course of an extensive field survey on river vegetation in Japan we found two new putative hybrids of *Potamogeton* which can be clearly distinguished from other taxa. In the following these two hybrids are to be described.

Potamogeton yamagataensis Kadono & Wiegleb, hybr. nov. Figs. 1 & 2.

Caulis ascendens ex rhizoma repentia, cylindricus, ad 1 m vel amplius elongans; folia natantia late lanceolata vel anguste elliptica, 2–7 cm longa, 4–20 mm lata, petiolus 6–14 cm longus; folia submersa tenuis, linearia, 8.5–25(–29) cm longa, 0.5–1.0 mm lata, apice acuta, 3-nervia; foliae intermediae anguste elliptici, 2–6 cm longi, 2–5 mm lati; stipulae convolutae, 2–4.5 mm longae. Spica 8 mm longa, pedunculus 8 cm longus, flores 4-carpellatae, pollen irregulares.

Distribution. Yamagata Pref.: Kyoda River, Kojima, Amarume-cho, Higashitagawa-gun (Sept. 3, 1985 Kadono & Wiegleb 1163 Holotype in KYO); Chichiyasu River, Kamiyanagihara, Tsuruoka City (Sept. 3, 1985 K & W 1164); Ohyama River, Toyoda, Tsuruoka City (Sept. 3, 1985 K & W 1162). Niigata Pref.: Yasuno River, Suibara-cho, Kita-kanbara-gun (Sept. 4, 1985 K & W 1352). The specimens cited here are deposited at KYO, Kobe University and/or Oldenburg University (FRG).

Jap. name: Hime-o-hirumushiro (nov.).

At first glance the plant looks like a poorly developed *Potamogeton natans* L. with small floating leaves. But it can be distinguished from *P. natans* which has thick phyllode-like submerged leaves by its long and thin submerged leaves.

The stem anatomy, too, indicates that it is a distinct taxon. The terminology of stem anatomy used here follows Ogden (1943). In all the shoots

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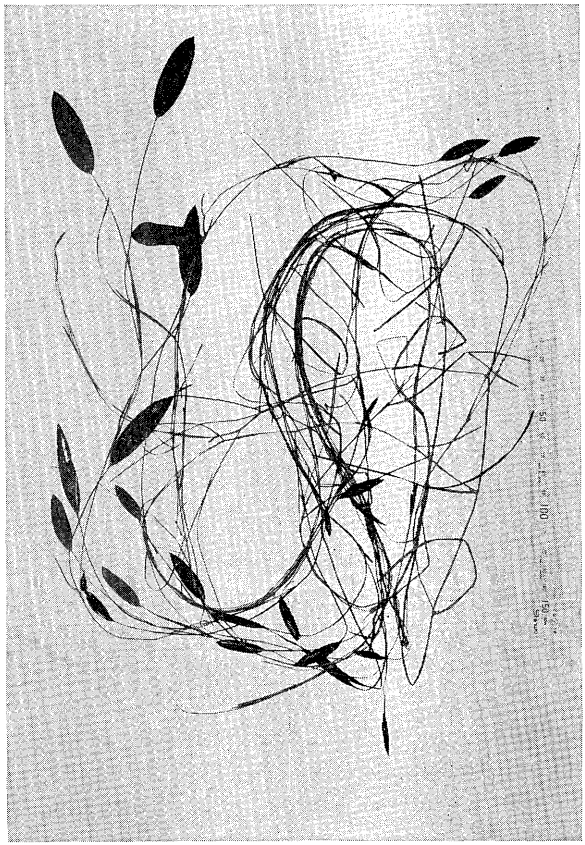

Fig. 1. *Potamogeton yamagataensis* Kadono & Wiegleb. Holotype (KYO).

examined interlacunar and subepidermal bundles are present and the endodermis is formed by U-cells. However, two types of stele can be recognized in the plants collected from Kyoda River (type locality). Fig. 2 shows one type which is found in most cases. In this type the arrangement of bundles in the stele is most similar to the oblong type with two median bundles. In another type the two median bundles are fusing into one elliptic median bundle. Though it is often believed that stem anatomy is a constant character in *Potamogeton* species, we cannot separate the plants with different type of stele by other morphological characters and treat them as one taxon. The specimens from

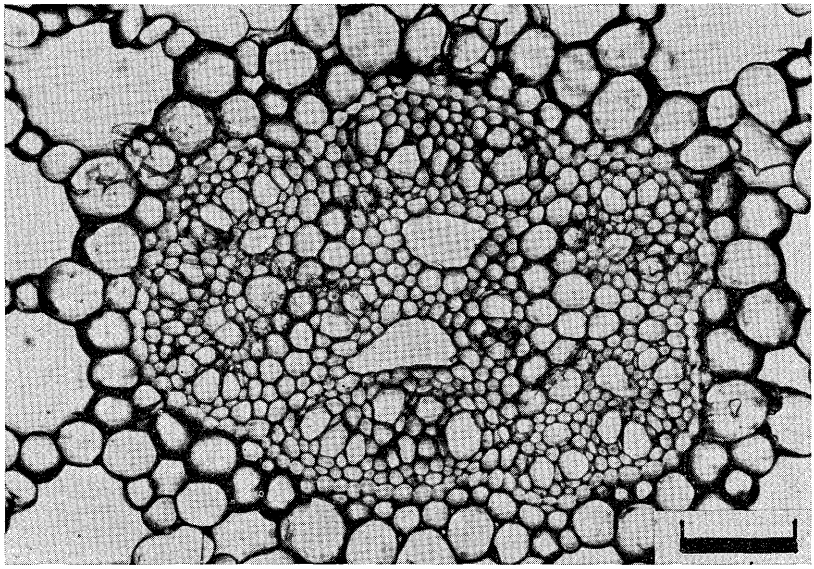

Fig. 2. Transverse section of the stele of *P. yamagataensis*. Bar indicates 100 μm.

other localities were tightly pressed, which made it difficult to reveal the characteristics of the stele to our satisfaction. Thus, the variability of stem anatomy of this hybrid is open to future study.

Judging from the characteristics so far revealed, one of the putative parents must be floating-leaved species with interlacunar and subepidermal bundles in the stem. As candidates of parentage in the flora of Yamagata and Niigata regions both *P. natans* and *P. fryeri* fulfill these requirements. While the former species grows in the lowlands of these regions, the latter one is restricted to mountainous ponds with acidic water. So we suppose that *P. natans* is the most probable putative parent of *P. yamagataensis*. This idea seems more feasible from morphological viewpoint, too. The other parent must be a linear-leaved species like *P. octandrus*. But further studies are necessary to solve this problem.

Our plant resembles *Potamogeton*×*variifolius* Thore which has been reported from France and Ireland. *P. variifolius* has been considered as a hybrid of *P. natans* and *P. pusillus* (sub *P. berchtoldii*) by Dandy & Taylor (1967). According to Hagström (1916) *P. variifolius* has a terete stem and "prominent

glandulous swellings" at the nodes. However, our plants have cylindrical stems and gland-like structures are not present at the nodes. So we regarded our plants as different from *P. variifolius*, even though also in that plant an affinity to *P. octandrus* has been assumed (Dandy & Taylor 1967).

Potamogeton kyushuensis Kadono & Wiegleb, hybr. nov. Fig. 3.

(*Potamogeton maackianus* A. Benn. × *P. oxyphyllus* Miq.).

Caulis ascendens ex rhizoma repente, parve compressus, simplex vel ramosus, ad 1 m vel amplius elongans; folia submersa, linearia, acriter viridis ad subfusce

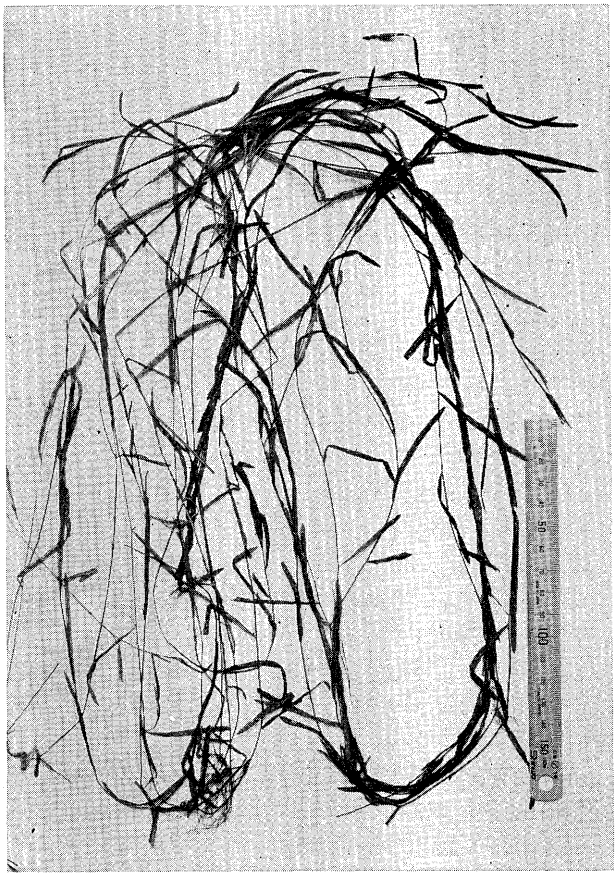

Fig. 3. *Potamogeton kyushuensis* Kadono & Wiegleb. Holotype (KYO).

viridis, 4–8 cm longa, 2–3.5 mm lata, parve dentata, 5–(7)-nervia, 1 vel 2 ordines cellularum lacunosi praeter nervum medium; ligulae convolutae, membranicae, caducae, ad 2 cm longae, 1–3 mm adnatae ad foliam.

In our collection only two spikes are available, but both of them are so underdeveloped that a description of flower characters cannot be given.

The stem has an oblong-type stele with one median bundle and several subepidermal bundles, being the same as that of *P. maackianus* and *P. oxyphyllus*.

Distribution. Miyazaki Pref.: Yahata, Kunitomi-cho, Higashimorogata-gun (Nov. 9, 1985 K & W 1296 Holotype in KYO); Seguchi, Shintomi-cho, Koyu-gun (Nov. 9, 1295); Toriko River, Toriko, Saito City (Nov. 9, 1985 K & W 1298); Shimada River, Kasahara, Saito City (Nov. 9, 1985 K & W 1299); Ohyodo River, Hirose, Miyakonojo City (Nov. 10, 1985 K & W 1300); Toshimi River, Shibita, Miyakonojo City (Nov. 10, 1985 K & W 1301). Kagoshima Pref.: Kohzuki River, Kagoshima City (May 24, 1975 Kadono 1909).

Jap. name: Ainoko-sennin-mo (nov.).

This new hybrid has an intermediate morphology between *P. maackianus* and *P. oxyphyllus*, though there are some gradations in its characters to either of the two species. It is distinguishable from *P. maackianus* by its more acute leaf apex and from *P. oxyphyllus* by the sheathing structure of the base of leaves and the serrulation of the leaf margin. We consider the nature of this plant as of hybrid origin between *P. maackianus* and *P. oxyphyllus* to be quite evident.

This hybrid has been collected from several localities in Miyazaki and Kagoshima Prefectures. It seems to be distributed widely in waters of southern Kyushu.

References

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1985年におこなった河川植生の調査の中で，ヒルムシロ属の未報告植物を2種見出した。いずれも雑種と考えられるものだが，特徴がはっきりしており，容易に識別できるものである。

1）ヒメオヒルムシロ *Potamogeton yamagataensis*　一見，生育不良のオヒルムシロかと思われるが，オヒルムシロの沈水葉が厚みのある針状葉であるのに対し，ヒメオヒルムシロのそれは薄く，長い糸状葉である。浮葉をもつが，沈水葉との移行的形態をもつものからよく発達したものまであって，形とサイズが不ぞろいであるのが特徴的である。花はまれにしか見られないが，正常な花粉が形成されないことから，オヒルムシロと狭葉性ヒルムシロ類の一種との間の雑種と推定した。山形県と新潟県北部の河川に分布し，生育地では優占種として群生するのがふつうの状態であった。

2）アイノコセンニンモ *P. kyushuensis*　センニンモとヤナギモの中間的形態を示すもので，葉の基部は托葉と合着して多かれ少なかれ葉鞘となり，葉縁には細鋸歯が認められる。しかし，葉の先はセンニンモのように凸出して円頭にはならず，鋭頭である。宮崎県と鹿児島県の河川に出現した。

○日本帰化植物誌資料 (1)（淺井康宏）　Yasuhiro Asai: Materials for the naturalized flora of Japan (1)

近年，我国の帰化植物フロラも故久内清孝先生を始めとする多くの関係諸氏のご努力によって，次第に明らかになりつつある。

筆者も過去30余年にわたり，全国各地の野外調査と並行して文献上の検討をも進めてきたが，何分にも我国のフロラの二次的構成要素ともいえる外来品の正確な同定は，種々な面で困難を伴うことを改めて実感している次第である。すなわち先に筆者が触れた諸点（本誌 **55**: 32, 1980）の中でも，特に原産地などにおける関連種の分類学的諸研究の進捗に伴ない，種々な問題点が俎上にのせられ，我国で旧来慣用されてきた基本的な学名すらも，当然変更を余儀なくされている実状にあるといってよい。したがって，その正確な検討には可成り多くの時間と，国内外における資料の蒐集と研究とが必要とされる。

筆者も，この線に沿って微力ながら努力を重ねてきたが，取敢えず現在，鋭意執筆中の日本帰化植物誌に関連して生じて来た若干のものについて，上掲のような表題の下に逐次公表しておくこととした。なお本稿をまとめるに当たり，長年にわたり種々御教示，御教導を賜わった故久内清孝先生，原寛博士を始めとする関係各位に対し衷心より感謝